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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,259	04/15/2004	Wayne D. Young	NVDA/P000715	8113
7590 09/29/2005 Moser, Patterson & Sheridan, L.L.P. Suite 100 595 Shrewsbury Ave. Shrewsbury, NJ 07702			EXAMINER LUU, MATTHEW	
			ART UNIT 2676	PAPER NUMBER

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/825,259

Applicant(s)

YOUNG, WAYNE D.

Examiner

LUU MATTHEW

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/28/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 2, 3, 10, 14 and 16 are objected to because of the following informalities:

Claims 2 and 3, line 5, "adding the result" should be - - adding the result of the left shifting - -.

Claim 10, line 3, "adding the result" should be - - adding the result of the left shifting - -.

Claim 14, line 10, "adding the result" should be - - adding the result of the left shifting - -.

Claim 16, line 9, "adding the result" should be - - adding the result of the left shifting - -.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country; more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 6, 8, 9, 11, 15 and 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Corry (5,784,050).

Regarding claims 1 and 17, Corry discloses (Figs. 1 and 4) a graphics processing unit, comprising:

a memory (403) for storing pixel data in binary form; and

a display pipeline (Fig. 4, playback pipeline and video pipeline) having a RGB to YcbCr (YUV, luminance and chrominance) converter module (421) for generating a luminance color component $Y = 1/4R + 1/2G + 1/4B$. See column 2, lines 14-35; column 5, lines 19-42; and column 6, lines 7-23.

Regarding claims 4 and 18, Corry further discloses (Fig. 6) a blue color difference component $Cb = U = (B - Y)/2$.

Regarding claims 6 and 19, Corry further discloses (Fig. 6) a red color difference component $Cr = V = (R - Y)/2$.

Regarding claim 8, Corry further discloses (Figs. 3 and 6) a memory management unit (SPU 301, memory sequencer 403 and frame buffer 307) for reading the pixel data from the memory (300) and passing the pixel data to the display pipeline (402).

Regarding claims 9 and 20, Corry discloses (Figs. 4 and 6) an YcbCr (YUV) to RGB converter module (422 and 412) for generating the red color component $R = Y + 2Cr = Y + 2V$.

Regarding claims 11 and 21, Corry further discloses (Fig. 6) the green color component $G = Y - U - Y$ or $(Y - Cb - Cr)$. See column 2, lines 30-35.

Regarding claims 12 and 22, Corry further discloses (Fig. 6) the blue color component $B = Y + 2U$ or $(Y + 2Cb)$. See column 2, lines 30-35.

Regarding claims 15 and 23, Corry discloses (Figs. 4 and 6) an YcbCr (YUV) to RGB converter module (422 and 412) for generating the red color component $R = Y + 2Cr = Y + 2V$.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 5, 7, 10, 13-14, 16 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corry in view of Bezryadin (6,934,411).

Regarding claim 2, note the rejection of claim 1 above.

The only difference between the disclosure of Corry and the claimed invention is that the claim requires the left shifting of the green color component G by 1 bit

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(multiplying by 2) and the right shifting by 2 bits (dividing by 4) to obtain the luminance color component $Y = 1/4R + 1/2G + 1/4B$ as disclosed by Corry above.

However, Bezryadin (6,934,411), from the same field of endeavor, discloses (Fig. 1) a display pipeline, which includes the color space converter modules (104 and 114). Bezryadin further discloses (Figs. 4 and 5) the 1-bit left shifter (502) and the 3-bit right shifter (506) for generating the color space converting coefficients (alpha (a) and beta (b)) for the RGB and YUV color values. See column 2, line 10; column 3, lines 1-15; and column 7, lines 21-34.

Therefore, it would have been obvious to a person of ordinary skill at the time of the invention to use the left and right shifters of Bezryadin into the color space conversion system of Corry since this is only an obvious variation of calculating the conversion coefficients (alpha (a) and beta (b)) for the RGB and YUV color values.

Furthermore, using the (2X) multiplier (515) (as shown in Fig. 5 of Corry) for the left shifter and the divider (530) for the right shifter, respectively, is an obvious variation since they are functionally equivalent.

Regarding claim 3, note the rejection as set forth above with respect to claim 2. Bezryadin further discloses the rounding error operation. See column 4, lines 25-30.

Regarding claim 5, note the rejection with regard to the left and right shifting as set forth above with respect to claim 2 above. Corry further discloses (Fig. 6) a blue color difference component $C_b = U = (B - Y)/2$.

Regarding claim 7, Corry further discloses (Fig. 6) a red color difference component $Cr = V = (R - Y)/2$.

Regarding claims 10, 16 and 24, note the rejection with regard to the left and right shifting as set forth above with respect to claim 2 above. Corry discloses (Figs. 4 and 6) a YcbCr (YUV) to RGB converter module (422 and 412) for generating the red color component $R = Y + 2Cr = Y + 2V$.

Regarding claim 13, Corry further discloses (Fig. 6) the blue color component $B = Y + 2U$ or $(Y + 2Cb)$. See column 2, lines 30-35.

Regarding claim 14, note the rejection as set forth above with respect to claim 2.

Regarding claim 25, note the rejection as set forth above with respect to claim 12.

Regarding claim 26, Corry discloses (Figs. 1 and 4) the luminance color component $Y = 1/4R + 1/2G + 1/4B$. See column 2, lines 14-35; column 5, lines 19-42; and column 6, lines 7-23.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Kim (US 2004/0119721) discloses a color signal processing device and a method for color conversion.

-Adams, Jr. et al (US 2004/0070677) a method of reducing color aliasing artifacts from a color digital image having color pixels including providing luminance and chrominance signals.

-Jiang et al (US 2003/0184559) an apparatus and method for color space conversion in video images.

-Glen et al (6,518,970) a graphics processing device with integrated programmable synchronization signal generation.

-Matsumoto (6,271,827) discloses (Fig. 1) a display pipeline with the color space converters (4 and 5).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUU MATTHEW whose telephone number is (571) 272-7663. The examiner can normally be reached on Flexible Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BELLA MATTHEW can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Luu

A handwritten signature in black ink, appearing to read 'Matthew Luu', with a large, stylized initial 'M'.

MATTHEW LUU
PRIMARY EXAMINER